The Howard W. Sams

61077

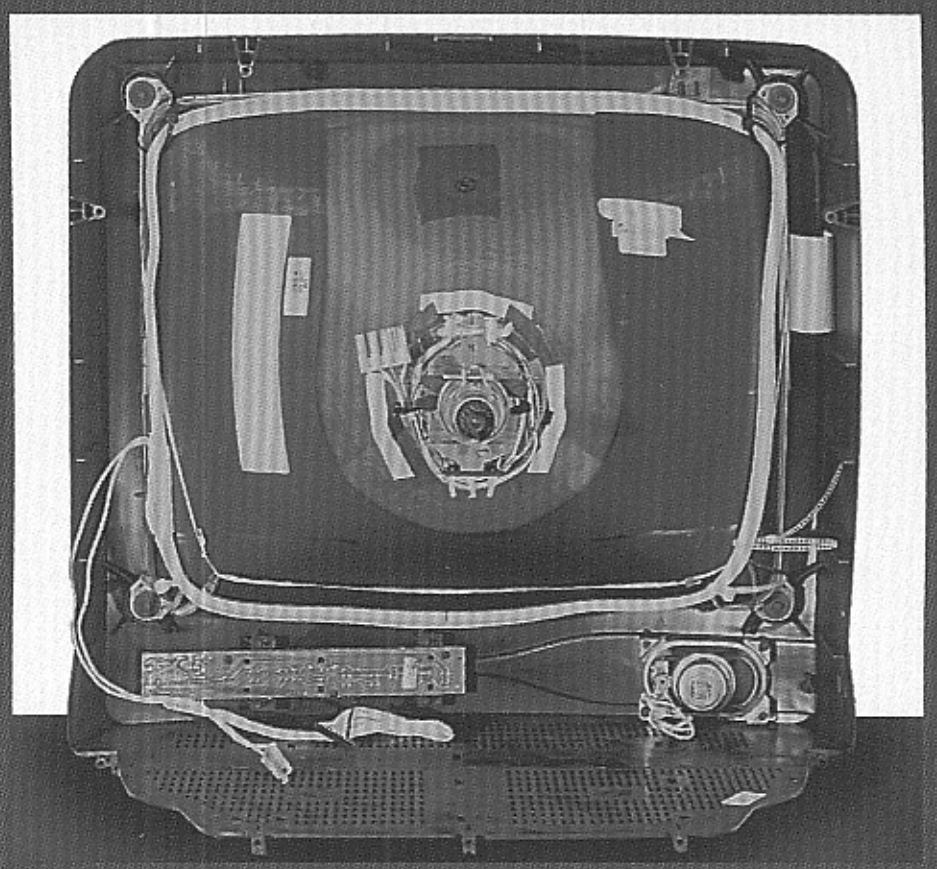
Troubleshooting & Repair Guide to TV

By the Engineering staff of Howard W. Sams & Company

Learn How to Troubleshoot PIP!

Learn How to Use Test Equipment For Servicing!

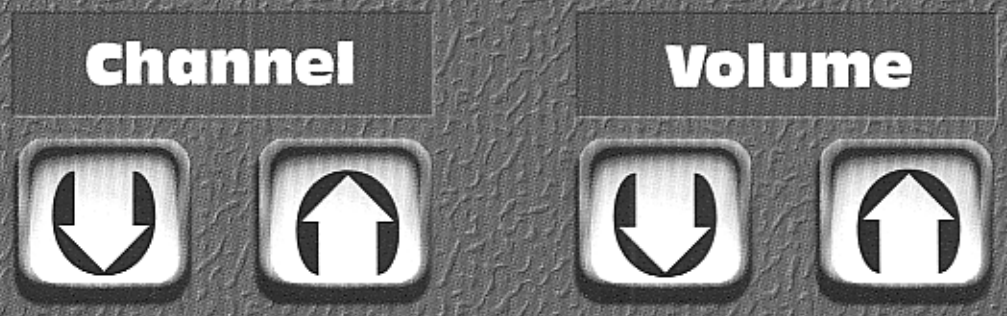
Troubleshoot Switch-Mode Power Supply Circuits!



Troubleshoot Microprocessor Tuner Control Circuits!

Troubleshoot Stereo and SAP Audio Circuits!

Troubleshoot Audio/Video Switching Circuits!



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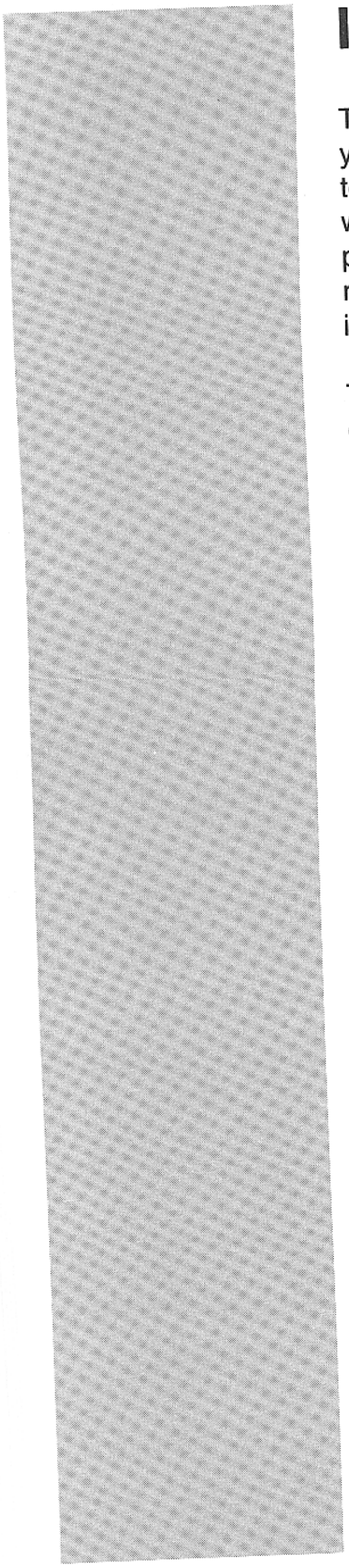


Introduction

This book has come into being out of pure necessity. Over the past fe years, the number of television repair centers and knowledgeable repa technicians has dwindled due to manufacturer and consumer attitudes t ward televisions as "disposable." For the past fifteen years or so, man people have acquired the opinion that it's just as expensive to get a T repaired as it is to buy a new one, so why not just toss out the old TV? Thi isn't necessarily a good idea.

The expense of TV repair has climbed, there's no doubt about that. How ever, while part of this has to do with the fact that there are repair center that deliberately overcharge their customers, a lot of it is the result of a lac of individuals (including technicians) who know how to repair a TV.

You can blame it on the lack of repair information available, or blame it o the fact that technical schools and repair centers have not placed an em phasis on learning TV repair because of the TV's "disposability." Whateve the case, televisions do not have to be tossed out the minute they develo glitches or problems, and they do not have to be expensive to repair. In ou ever-changing global economy, buying a new television to replace an old one is not always an option. If an individual has the proper information and tools at their disposal, then repairing a TV becomes simple and very eco nomical. With a minimal amount of technical knowledge, you can learn t repair your own TV with the help of this book.

This book was written using the years of experience accumulated by Howard W. Sams & Company technicians while creating PHOTOFACT, which is tech nical data and schematics on televisions that have been created since the end of World War II. For 50 years, Howard W. Sams & Company has pro vided the most timely and state-of-the-art TV technical data available, and has introduced many techniques to help service technicians and electron ics hobbyists.

Following World War II, electronics manufacturers' time, effort, and resources were directed toward meeting the increasing demand for new equipment and parts, and toward trying to integrate new electronic technology devel oped during the war. As a result, most manufacturers stopped producing service and replacement parts information. Individuals found it increasingly difficult to find the information needed to repair certain electronic compo nents and technical equipment, including TVs—not unlike the situation that exists today. It soon became apparent that something needed to be done to make service information readily available to the professional electronics

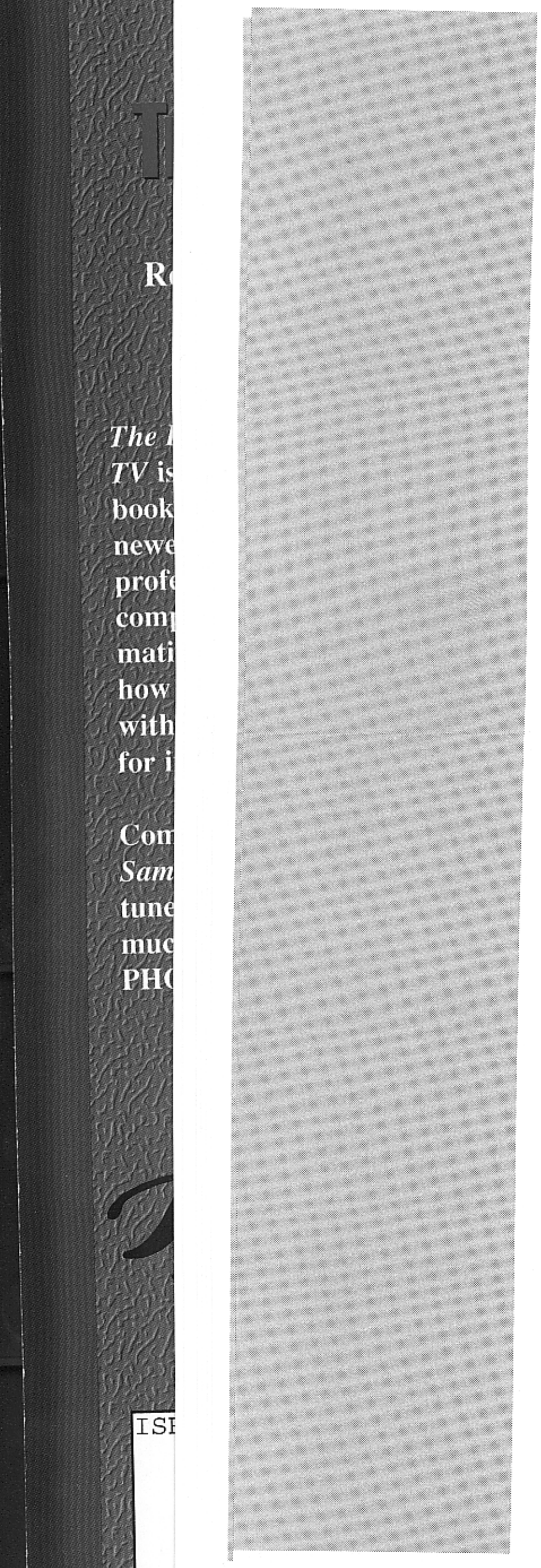
technicians, as well as to individual hobbyists who preferred to make their own repairs.

To produce readily available service and replacement parts data, Howard W. Sams rented 5,000 square feet of space in Indianapolis, Indiana in 1946, hired 12 employees, and began producing PHOTOFACT.

PHOTOFACT is designed to provide as much detailed information as possible for easy servicing of individual television sets. Contained in each PHOTOFACT folder is technical data and schematics covering IC functions, important parts information, miscellaneous adjustments, parts lists, safety precautions, schematics, wave forms, voltages, troubleshooting tips, and more. Throughout the changes that televisions and the industry have experienced over the years, PHOTOFACT has remained the most up-to-date and accurate source of TV service data available. PHOTOFACT schematics are used throughout this book to provide you with the most comprehensive and user-friendly information possible for the television part that you are troubleshooting. Appendix B also provides detailed information about PHOTOFACT and how to use it.

The Howard W. Sams Troubleshooting & Repair Guide to TV contains all the information the novice TV repair technician needs to service and repair all models and makes of televisions. Chapter 1 covers *Television Basics*, including how TVs produce pictures and sound, how they receive signals transmitted from broadcasters, and more. This information is useful because it will be easier for you to service a TV once you understand exactly how it works. Chapter 2, *Working Safely*, covers basic safety tips and safety problems commonly encountered in TV repair. Chapter 3 covers *The Basics of Troubleshooting*, outlining general techniques and troubleshooting methods. Chapters 4 and 5 explain *Troubleshooting Power Supplies* and *Video Circuits*, including CRT and PIP. Chapter 7 covers *Troubleshooting Deflection Circuits*, which control the horizontal and vertical scanning that produces pictures on the TV screen. *Troubleshooting High-Voltage Circuits* is described in Chapter 8, and *Tuner Circuits* are covered in Chapter 9. Finally, *Troubleshooting System Control Circuits* is featured in Chapter 10, which also covers closed caption, remote control and channel memory (RAM) circuits. Each chapter includes a brief quiz at the end as a summary to the information covered, and Appendix A contains a more extensive test for students or for anyone wanting to test their knowledge of TV repair.

Acknowledgments go out to everyone who had a hand in this book by suggesting additions, changes, topics and more, and by implementing them for inclusion in this book. Many thanks to Rida Scott and Avalon Group; to Dave Sullivan; to Tim Clensy, Bill Fink, and the Howard W. Sams PHOTOFACT department; to Evelyn G. Turner and Jim Hollomon, Jr.; to Jim Allen



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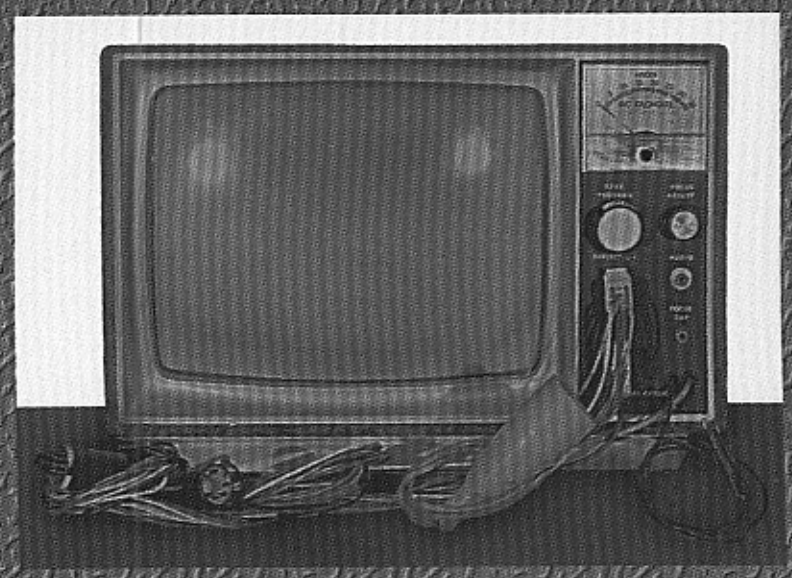
The Howard W. Sams Troubleshooting & Repair Guide to TV

Repairing and troubleshooting a television is very simple and economical with help from the information in this book!



The Howard W. Sams Troubleshooting & Repair Guide to TV **is the most complete and up-to-date television repair book available, with tips on how to troubleshoot the newest circuits in today's TVs. Written for novice and professional technicians alike, this useful guide contains comprehensive and easy-to-follow basic electronics information, coverage of television basics, and extensive coverage of common TV symptoms and how to correct them. Also included are tips on how to find electronic problems that interfere with TV performance, and a question-and-answer section at the end of each chapter — useful for instructors or anyone teaching themselves TV repair.**

Completely illustrated with useful photos, schematics, graphs and flowcharts, *The Howard W. Sams Troubleshooting & Repair Guide to TV* covers audio, video, horizontal/vertical sweep, tuners, technician safety, high-voltage circuits, test equipment, power supplies, PIP, and much, much more. The appendix contains exclusive coverage of Howard W. Sams & Company's PHOTOFACT, the most up-to-date and accurate source of television technical data available.

The Howard W. Sams Television Troubleshooting & Repair Guide to TV **was written, illustrated and assembled by the engineers and technicians of Howard W. Sams & Company. With a combined 200 years of TV troubleshooting & repair experience, and their expertise acquired through creating PHOTOFACT, Howard W. Sams' technicians are uniquely qualified to produce a TV book that presents valuable information to anyone who wants to know how to repair a television.**

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